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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SKIBINSKY, ANNA	

ART UNIT	PAPER NUMBER
1631	

MAIL DATE	DELIVERY MODE
09/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/621,821	KUTSYY ET AL.	
	Examiner	Art Unit	
	Anna Skibinsky	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 15-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 15-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Reply to Applicant's Amendments

Amendments to claims 15 and 23 are acknowledged. Claims 15- 26 are under examination.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 15-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 and 15-26 of copending Application No.10/595,045. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending claims are either species of the instant claims of have only minor differences encompassed by the instant generic claims

3. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicants have requested in the remarks filed 6/20/2007 that the rejection be held in abeyance until claims in one of the applications are allowed. Applicants have not filed a terminal disclaimer. Until such time as all rejections are overcome by amendment, argument or other response, the claims will not be indicated as allowable. No rejections may be held in abeyance.

Claim Rejections - 35 USC § 112-2nd paragraph

1. The rejection of claims 15-26 rejected under 35 U.S.C. 112, second paragraph, is withdrawn in view of Amendments filed 6/20/2007.

Claim Rejections - 35 USC § 103

1. This rejection is maintained from the previous Office Action filed 3/23/2007.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 15-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US Patent No. 6,611,833, filed June 23, 1999) in view of Friend et al. (US Patent No. 6,801,859, filed December 23, 1998).

4. As in instant claim 15, Johnson teaches a database of "blueprints" (i.e. captured images) of cellular tissue (i.e. population of cells) where statistical characteristics of tissue are collected after a population of tissue is profiled through imaging methods (col. 1, lines 45-56 and col. 2, lines 14-48). The tissues are profiled I.e. signatures are created) and a plurality of structural indices are generated (col. 3, lines 5-59 and col. 4, lines 45-67) (i.e. metrics). The distribution of measured characteristics (i.e. signatures) are calculated and stored for various types of tissues such as "normal" and "abnormal" tissue (col. 5, lines 27-52). The "normal" and "abnormal" tissue as taught are from the same tissue population yet contain cellular features which are normal and abnormal, respectively, as required by claim 17. As recited in instant claim 15, the prior art of

Johnson teaches the imaging (col. 2, lines 25-31 and col. 9. line 40 to col. 10, line 31) of a population of cells, creating signatures which are the measured characteristic for which an index, or metrics, are measured for "normal" tissue, and a side effect signature which is the characteristic (i.e. signature) of "abnormal" tissue that is either stored in the database or in the possession of the user (col. 21, lines 24-43). Comparisons can be made between the features of the "normal" and "abnormal tissue". The normal and abnormal tissue can then be accessed by a user who would like to compare samples to the tissues in the database.

5. The prior art of Johnson teaches creating images of cells and then creating signatures and metrics for cells, as set forth above, but does not teach applying a treatment to the tissue (as recited in lines 1 and 5 of instant claim 1) and creating a signature that is an "on-target" signature and a "side effect signature" to characterize the treatment (as recited in lines 15-16 of instant claim 1).

6. As in instant claims 19-21, Johnson teaches deriving an "on-target metric" and "side effect metric" in the form of indices of "normal", "abnormal", and user introduced tissue. The metrics are the index values referred to throughout the text which are calculated from the various signature characteristics determined from the imaging. For example cellular DNA and mRNA characteristics and indexes are discussed (col. 15, lines 9-44). The control group (as recited in instant claim 20) is either the "normal" or "abnormal" tissue data in the database accessed by the user (col. 21, lines 24-43). The imaging (as recited in instant claim 21) is taught for profiling the tissue specimens (col. 3, lines 25-35).

7. Johnson teaches the measurement of qualitative data from cellular features determined from images. The data can be accessed by users to compare different states the tissue against the tissue in the database to determine it there has been a response which is "normal" or "abnormal". Though Johnson recites that the inventions can be used for drug development, he does not specifically recite varying the exposing the cellular tissue to treatment (instant claim 18). Johnson does not teach varying the doses of treatment (as in instant claim 19). Additionally, Johnson does not perform calculations in multivariate space (instant claims 22 and 23).

8. However, Friend et al. teaches obtaining a response profile for a compound such as a drug to determine if the compound exhibits an "ideal" vs. a "non-ideal" effect. The prior art of Friend et al. thus teaches treating cells with a drug to measure drug effectiveness and toxicity (col. 2, lines 42-62). The "ideal" effect is a measure of the "on-target effect" as required by claim 1 in that it relates to a consensus profile which represents an ideal, desired activity profile across some standard measurement set such as cellular constituents (i.e. cellular features from a cell population, as in claim 1), as required by claim 16. The "non-ideal" effect is a measure of the "side effect to the on target effect" in that Friend et al. teaches this to be a measure of related toxic effects of the treatment (col. 7, lines 1-14), as in claim 18. The calculation of a similarity "metric" for comparing biological response profiles is also taught (col. 4, lines 27-38) by Friend et al.

9. Friend et al further teach comparing the consensus profiles with the "ideal" drug effects and relative toxicity to evaluate the drug (col. 6, line 1-14), as in claim 15

requiring the comparison of the "on target effect" metric to the side effect metric to characterize the response of cells to the treatment.

10. Friend et al. teaches building "consensus profiles" for response of cells to various drugs by exposing them to graded levels of the drugs (col. 6, lines 1-19).

11. Friend et al. further teaches exposing cells to drug treatment, monitoring them for "ideal" and "non-ideal" effects, and based on generated profiles, identifies compounds with the desired activity (col. 6, lines 1-19 and col. 8, lines 19-51). Additionally, the calculation of metrics are specifically taught (col. 4, lines 27-38). The use of multivariate space is used to calculate the biological profiles (col. 12, lines 41-62). Data is clustered and the distances between the clusters is calculated (col. 20, lines 30-40).

12. Claims 24-26 recite characterizing the treatment is based on the side effect distance and the on-target effect distance and generating a graphical representation of the side effect distance and on-target effect distance.

13. Friend et al. teaches the calculation of distances of a cellular constituent effected by the treatment (col. 20, lines 30-40) which inherently characterizes the treatment. Graphical representations of data are taught in Figure 7.

14. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have implemented the teachings of Johnson where images of "normal" and "abnormal" cell tissues are taken and the characteristics of (signatures) of cellular features are measured to form indices (metrics) that can be accessed and used for comparison, in combination with the teachings of Friend where effectiveness (on site effect signature) and toxicity (side effect signature) are measured.

One of skill in the art would have been motivated to modify the teachings of Johnson with that of Friend because Friend teaches that such methods are useful in the process of drug discovery or design (col. 2, line 63 to col. 3, line 9). One of skill in the art would have had a reasonable expectation of success at using the imaging and measurement of quantitative characteristics of cells as taught by Johnson et al. (col. 1, lines 45-56 and col. 2, lines 14-48) on the drug candidate treated cells of Friend et al. because both Johnson and Friend treat analysis of cellular constituent characteristics.

REPLY TO REMARKS

15. Applicant's arguments filed 6/20/2007 have been fully considered but they are not persuasive.

16. Applicants argue (Remarks, page 8, lines 11-20) that the on-target effect signature and the side effect signature recited in the claims are different from those taught by Johnson in that the claims recite treated cells from a single population and that the on target and side effect signature are created from a single treated population of cells.

17. In response, it is admitted (as of the last Office Action 3/23/2007) that Johnson does not teach treating a population of cells, however, Johnson does teach a population of cells with different cellular features (normal or abnormal) that are characterized with a signature and a metric. Applicants repeatedly argue that Johnson does not teach "a single treated population of cells", which is not persuasive because Johnson does teach a single population, thought the population is further subdivided into normal and

abnormal cells. Furthermore, Friend teaches applying a treatment to cells to measure effectiveness (on target effect) and toxicity (side effect) on cellular constituents. Therefore, effectively, the cells taught by both Johnson and Friend read on the limitation "a population of cells" as recited in claim 15 and "the same tissue," as argued by applicants (page 9, lines 1-5).

18. Applicants argue (Remarks, page 9, lines 6-13) that the art of Friend does not teach creating an on-target effect signature and a side effect signature both from a population of cells derived from a single population of cells that is treated.

19. In response, Friend does teach measuring a consensus profile of effectiveness (on target effect) and toxicity (side effect) on cells while Johnson is relied on to teach the concept to measuring a signature and a matrix from a population of cells.

20. Applicants argue (page 9, lines 14-18) that Examiner has not provided any motivation in the art to modify the prior art of Johnson with that of Friend.

21. In response, one of skill in the art would have been motivated to modify the teachings of Johnson with that of Friend because Friend teaches that such methods are useful in the process of drug discovery or design (col. 2, line 63 to col. 3, line 9), as set forth above.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Skibinsky whose telephone number is (571) 272-4373. The examiner can normally be reached on 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjie Moran can be reached on (571) 272-7020. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anna Skibinsky, PhD

MARJORIE A. MORAN
PRIMARY EXAMINER
9/14/07